

unfilteredaudio

# G8 Dynamic Gate

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## User Manual

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## Introduction

Congratulations on your purchase of a new G8 Dynamic Gate. G8 is the essential tool for professional control and creative manipulation of dynamics in Reason.

With its large meters, intuitive layout, and full CV access, G8 achieves unparalleled dynamic control while reducing operator fatigue. G8: Only the Good Parts™.



As with all audio equipment, proper operation and maintenance play a vital role in the performance of your G8. It is, therefore, extremely important to read and understand this operations manual before mixing with your G8.

## Using G8

### I. Audio Configuration

Audio enters G8 through stereo left and right inputs. In a normal configuration, the amplitude of this incoming audio stream is calculated and used to either trigger an attack or release stage on the gate depending on whether or not it is above or below the set threshold value. The resulting envelope is applied to the incoming signal and output through the main stereo output.

#### A. Sidechain Input



An optional mono or stereo sidechain can be input through its designated input. If a sidechain is attached, its calculated amplitude will be used in place of the normal input to determine whether the gate should open or close. This is commonly used to apply the amplitude of one signal to another. For instance a kick drum can be used as the sidechain of a bass line in order to easily sync them rhythmically.

#### B. Reject Output

The reject output uses the opposite gating envelope of the main output. For example, if the gate is fully “closed” resulting in silence

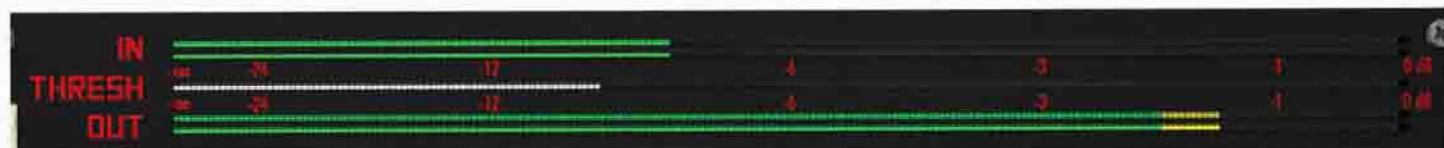


through the main output, the reject output will be at full volume and vice-versa. Because the main output and the reject output use opposite envelopes, their sum should equal the original signal (plus whatever pre-gain and post-gain are applied).

This can be used as a sort of “dynamic splitter” where different effects can be applied to the main and reject outputs. See the included combinator patches for examples of composite distortions created through this process.

## II. Metering

### A. Amplitude Meters



The horizontal amplitude meters serve as a visual representation of G8’s signal processing sequence starting from top to bottom. The incoming audio signal is amplified by the pre-gain. Its amplitude is then compared to a specified threshold. If it is over the threshold, the gate’s amplitude envelope will open at a rate determined by the attack time. If it is below the threshold, the envelope will close at a rate determined by the release time. The input signal is then multiplied by the envelope’s current value and the post gain. The amplitude of the final signal is then displayed on the output meter.

G8’s meters are perhaps the largest and highest resolution meters available in Reason, which ensures an unmatched level of dynamic accuracy.

### B. Lamp



The lamp next to the G8 logo in the top left corner of the rack, turns on and off based on whether or not the input signal is above the threshold value. This is also viewable when the rack is folded, and is meant to provide a quick visual cue to determine G8’s state during a complicated session.

## III. Interface

G8s front-panel interface is meant to represent the internal signal processing chain, moving from left to right.

### A. Amplitude Analysis: Peak vs. RMS

The amplitude analysis type of either Peak or RMS is selected using the designated buttons in the lower left hand corner of the rack. Peak mode responds more quickly to transients and is therefore best used when fast attack times are required such as with percussive sounds. RMS mode is a better representation of the signals amplitude over the specified sampling period, reacting more smoothly.

### B. Flip

In Flipped Mode, the gating envelope remains OPEN when the input signal is below the amplitude threshold. When the signal passes over the threshold, the gating envelope closes over G8’s attack time setting. When the signal again passes below the threshold, the gating envelope closes over G8’s release time setting.



Because the Reject Output always mirrors the normal output, it might be simpler to imagine the Flip Switch as swapping the Reject Output with the normal one on the back of the device.

### C. Lookahead

The amount of lookahead is chosen in milliseconds using the lookahead Knob. Lookahead applies an X millisecond delay on the incoming signal AFTER analysis, which enables it to open “ahead” of incoming spikes in amplitude. This, of course, comes at the cost of X milliseconds of latency on the output signal. Changing the lookahead amount can be used to shape transients in many interesting ways.

### D. Pre-Gain

The Pre-Gain Knob determines the amount of gain applied to the incoming signal BEFORE analysis. If a sidechain signal is connected, the Pre-Gain amount is applied to both the original input signal as well as the sidechain.

### E. Threshold

The Threshold Knob sets the amplitude value to compare to the input signal. The result of this comparison (higher vs. lower) determines the attack stage of the gating envelope. If the input signal is above the threshold, the gate will enter “attack” mode to open the envelope. If it is below the threshold, the gate will close through a “release” mode.

### F. Attack

The attack Knob sets a time in milliseconds that it takes for the gat-

ing envelope to open. This envelope is created through a recursive exponential smoother. More specifically, the Knob’s value sets the amount of time after which the envelope will be within 1% of fully open. This is modeled after the behavior of smoothing circuits used in analog gates.

In Flipped mode, the Attack Knob sets the amount of time for the gating envelope to close from its normally open state.

### G. Hold

When the input signal crosses from above to below the threshold value, the gating envelope does not release until after a specified amount of Hold time set in milliseconds. This prevents the “chattering” effect when an input signal repeatedly crosses above and below the threshold value in quick succession.

### H. Release

The Release Knob sets a time in milliseconds that it takes for the gating envelope to close.

In Flipped mode, the Release Knob sets the amount of time for the gating envelope to open again after being closed.

### J. Reduction

The Reduction Knob sets an amount of decibels to reduce the gated signal once the gating envelope is closed. In its default state, the reduction is set to infinity dB, meaning that when the gate is closed, only silence will be output. If the reduction is set to -5.0 dB, G8 will only reduce a gated signal by a maximum of 5 dB.



The Reject Output will still be enveloped by the opposite of the main gating envelope, being scaled to whatever the Reduction Knob is set to.

#### K. Post-Gain

The Post-Gain Knob determines the amount of gain applied to the incoming signal AFTER analysis. The Post-Gain is also applied to the Reject Output signal.

### IV. CV Control

G8's CV control is mapped to allow the maximum possible range of control for any Knob configuration.



For the each of the Knobs, positive or negative CV input is scaled to add or subtract the amount needed to reach the maximum or minimum Knob value. For instance if the Knob is set to 0.7 (normalized), then adding positive 0.0 to 1.0 CV will add 0.0 to 0.3 to value, as if turning the Knob between 0.7 and 1.0.

#### A. Trim

Trimming the CV input through the trim Knob will cause the incoming CV to be multiplied according the the amount set by the Knob. For instance, if the trim Knob is set to half (63), a CV input of 1.0 will be “trimmed” to 0.5.

#### B. Threshold Meter CV

The Threshold Meter reflects all CV input, so the result of CV modulation can be observed dynamically while the device is running.

## Credits

G8 is brought to you by the three audio scientists at Unfiltered Audio:

Joshua Dickinson  
Michael Hetrick  
Ryan McGee

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